Vehicle Infrastructure Integration (VII)

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Vehicle Infrastructure Integration (VII)

- Communication Network
- Public and Private Users
- Roadside Units
- Traffic Signal Controller
- DSRC

Cars communicate with roadside units, traffic signal controllers, and the communication network using DSRC technology.
VII Coalition

- USDOT
- American Association Highway and Transportation Officials (AASHTO)
- International Bridge, Tunnel and Turnpike Association (IBTTA)
- ITS America
- Local Government
- VII Consortium (VIIC)
VII Consortium

• BMW
• Chrysler LLC
• Ford
• General Motors
• Honda
• Mercedes Benz, NA
• Nissan
• Toyota
• Volkswagen
VII Vehicle

- GPS
- Communication
  - Vehicle to vehicle
  - Vehicle to infrastructure
- Human Interface
- Anonymous Probe Data
  - Speed and direction
  - Braking
  - Wipers, temperature, etc
DSRC Communication

- FCC Licensed 75 MHz at 5.9 GHz
- Primary Purpose is Safety
- Commercial Applications Allowed
- Standards
  - IEEE 802.11p
  - IEEE 1609 Family
  - SAE J2735 – Message Set
VII Infrastructure

- Existing Camera Poles
- Traffic Signals
- Communication Network
- User Access Point
Collision Avoidance

• Run Off the Road Warning
• Lane Changing Warning
• Stop Ahead Warning
• Signalized Intersection
  – Violation Warning
  – Timing Modification
Traveler Information

- Real-time travel data
- Navigation
- In-vehicle Signing
  - Static
  - Dynamic
In-vehicle Signing

• Work Zone Signing
  – When needed
  – Changeable
In-vehicle Signing

- Emergency Vehicle Warning
  - Move Over Law
  - Which direction
In-vehicle Signing

• Clearance Signing
  – Warning message
  – Alternate route information
In-vehicle Signing

• Parking Information
  – Availability
  – Options
  – Directions
Weather Information

- Traction Control
- Wipers
- Road Level Temperature
Electronic Payment

- Tolling
  - National Interoperability
- Private
  - Fuel
  - Food
Current Activities

• Proof of Concept Testing
  – Detroit
  – Palo Alto

• Task Teams
  – Benefit Cost Analysis
  – Policy and Deployment Issues
  – Outreach

• USDOT SAFE TRIP-21
Vehicle Miles Pricing

- 20 aftermarket equipped vehicles
- District Five – nine counties
- Collected revenue
  - fuel tax
  - Variable priced mileage fee
- Distribution
  - Florida Statute/Local Option
  - Roadway traveled
Vehicle Miles Pricing

- Fuel Tax
  - Fuel used
    - Taxes Collected
  - Distribution of tax per current formula
    - State
    - County
    - City

- Vehicle Miles Pricing
  - Miles driven fee
    - Peak
    - Off-peak
    - System used
  - Distribution of fee
    - State
    - County
    - City
    - Toll
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